

CLAIMS

1. A method of forming an OLED element or display having two or more OLED layers, which method comprises providing a blocking layer by printing with an ink in a
5 desired pattern between two of the OLED layers, whereby, in use, conduction across the OLED element or display is reduced in the area of the pattern.
2. A method of forming an OLED element or display as claimed in claim 1 wherein the ink is coloured to increase contrast.
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3. A method of forming an OLED element or display as claimed in claim 1 or 2 wherein the blocking layer is located between an electroluminescent layer and either an anode or cathode of the OLED element or display.
- 15 4. A method of forming an OLED element or display as claimed in any one preceding claim wherein the blocking layer pattern comprises a multiplicity of discrete points of ink.
5. A method of forming an OLED element or display as claimed in claim 4 wherein the discrete points of ink are less than about 100 μm in size.
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6. A method of forming an OLED element or display as claimed in claim 4 or 5 wherein the pattern comprises regions with different densities of the discrete points.
7. A method of forming an OLED element or display as claimed in any one preceding
25 claim wherein the ink is insoluble in the medium used to deposit underlying and/or overlying OLED layers.
8. A method of forming an OLED element or display as claimed in any one preceding
30 claim wherein the ink comprises a medium which is a liquid which does not dissolve the layer on which the ink is printed.
9. A method of forming an OLED element or display as claimed in any one preceding
35 claim wherein the ink further comprises a colorant, a polymeric binder and/or functional additives.
10. A method of forming an OLED element or display as claimed in any one preceding
40 claim wherein the ink is deposited by a direct printing technique selected from ink-jet printing, screen printing, microcontact printing, stamping, soft lithography or electrophotographic printing using a liquid or solid toner.

11. A method of forming an OLED element or display as claimed in claim 10 wherein the ink is deposited by ink-jet printing.

5 12. A method of forming an OLED element or display as claimed in any one preceding claim wherein the ink blocking layer is thicker than the OLED layer(s) subsequently deposited onto it.

13. A method of forming an OLED element or display as claimed in any one preceding claim wherein the ink blocking layer thickness is from 100 nm to 100 μ m thick.

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14. A method of forming an OLED element or display as claimed in any one preceding claim wherein the OLED layer(s) to be deposited are independently applied by a coating or printing technique selected from solution-, spin-, spray-, dip-, web-, die- or evaporation coating; electroless deposition and ink-jet printing, screen printing, microcontact printing, stamping or soft lithography.

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15. A method of forming an OLED element or display as claimed in any one preceding claim wherein the wetting of the ink includes a surface treatment of the layer on which the ink is deposited.

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16. An OLED element or display obtainable by a method as claimed in any one preceding claim.

17. An OLED display as claimed in claim 16 which, in use, produces a pseudo 3-D image.

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